

Eastern Agency / State of NM

Ambrosia Lake Sub-district



# Background / Status

- 12 uranium mine surface expressions in the Ambrosia Lake Tronox Settlement Area
  - 8 EPA 6 lead
  - 3 EPA 6 and 9 co-lead (Section 10, Section 22 and Section 32/33)
  - 1 BLM lead (no funding request anticipated)
- Ambrosia Lake Sub-District Mines
  - Section 32/33
  - 3 Geographic Sub-Areas
- EPA 6 conducting groundwater assessment with NMED of San Mateo Creek Basin

# Key Accomplishments

- ✓ Completed Extent of Contamination Survey in East GSA
- ✓ Started Extent of Contamination Survey in West GSA
- ✓ Completed 2<sup>nd</sup> Phase of groundwater assessment field work
- ✓ Started developing joint EPA 6 and EPA 9 Community Involvement Plan for Tronox Settlement Area
- ✓ Started integrating Navajo Fundamental Law into CERCLA process where possible
- ✓ Monthly calls, quarterly meetings with Tronox Team

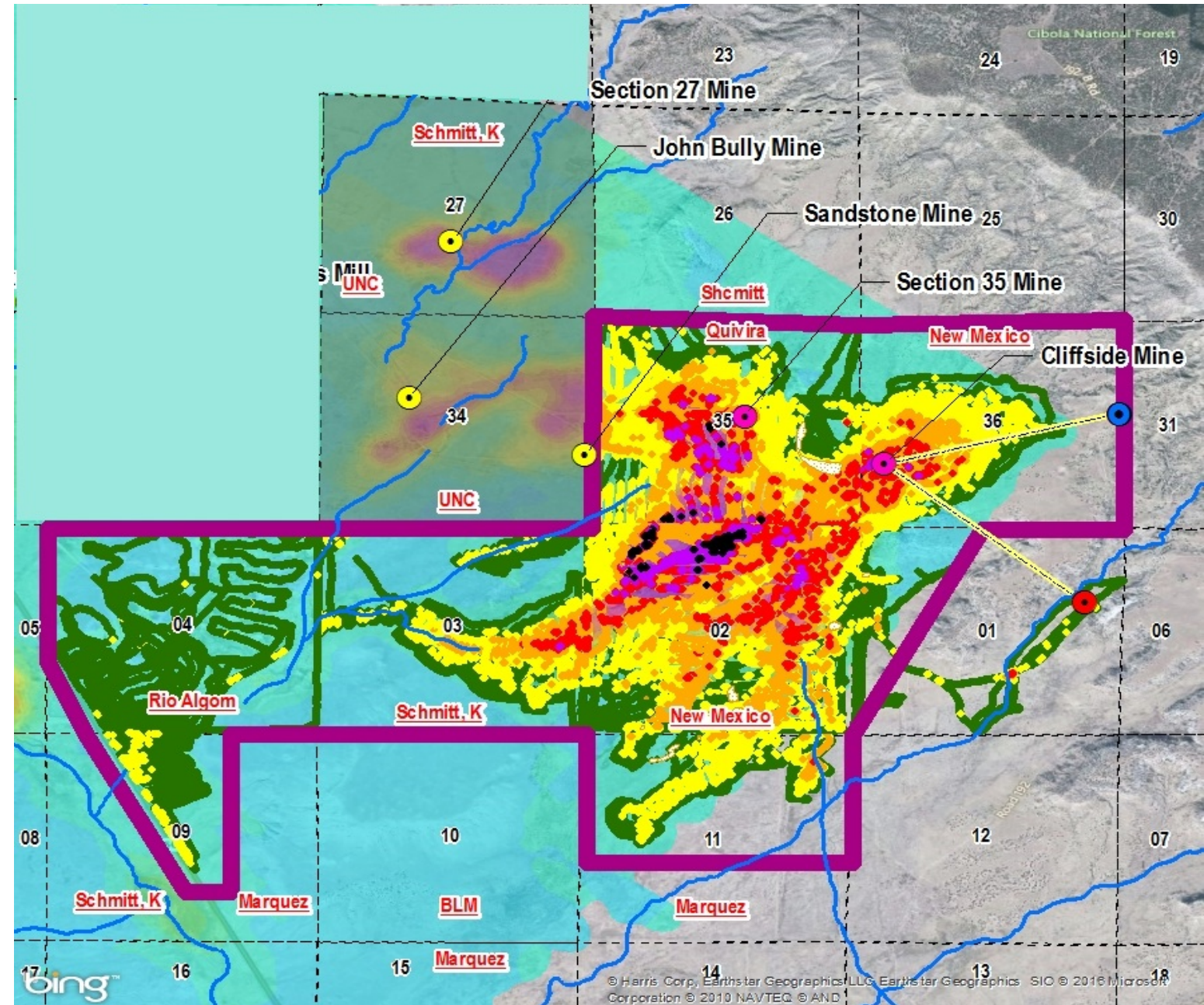


# EAST GSA STATUS

Extent of contamination assessment started July 2015, completion 03/16

- ❖ Established Site Specific background
- ❖ Surface/near surface gamma survey
- ❖ Confirmatory sampling with on-site MCA and off-site laboratory
- ❖ Geotechnical Survey for mine debris burial pits/trenches
- ❖ Geological data collection needed to evaluate viability of on-site repository during the upcoming EE/CA process
- ❖ Archaeological survey for Section 106 compliance\*
- ❖ Ecological baseline risk survey

\* Only activity pending completion



# Fundamental Law in the East GSA CERCLA

## Traditional Law/Customary Law in the East GSA CERCLA Process

- ❖ §106 of the National Historic Preservation Act requires an archaeological survey on all CERCLA projects (consistent with Traditional Law).
- ❖ 106 survey on-going in East GSA, completion 03/16
- ❖ Survey results to date: 33 identified sites identified
  - ❖ At least 10 are eligible for inclusion on National Register and need affect determination
  - ❖ All sites have “prehistoric” designation
- ❖ EPA 6 coordinating with NM SHPO staff and NM SLO archeologist and private land owners.
- ❖ CERCLA requires a Community Involvement Plan (CIP) be completed prior to final approval of the EE/CA for a Site (consistent with Customary Law).
- ❖ EPA 6 staff currently working on developing the CIP for the Ambrosia Lake Sub-District activities in coordination with EPA 9 staff (Priscilla Tom).
- ❖ EPA 6 FOSCs have initiated community outreach in Baca-Prewitt Chapter with Priscilla Tom, local outreach activities on-going in the Chapter.

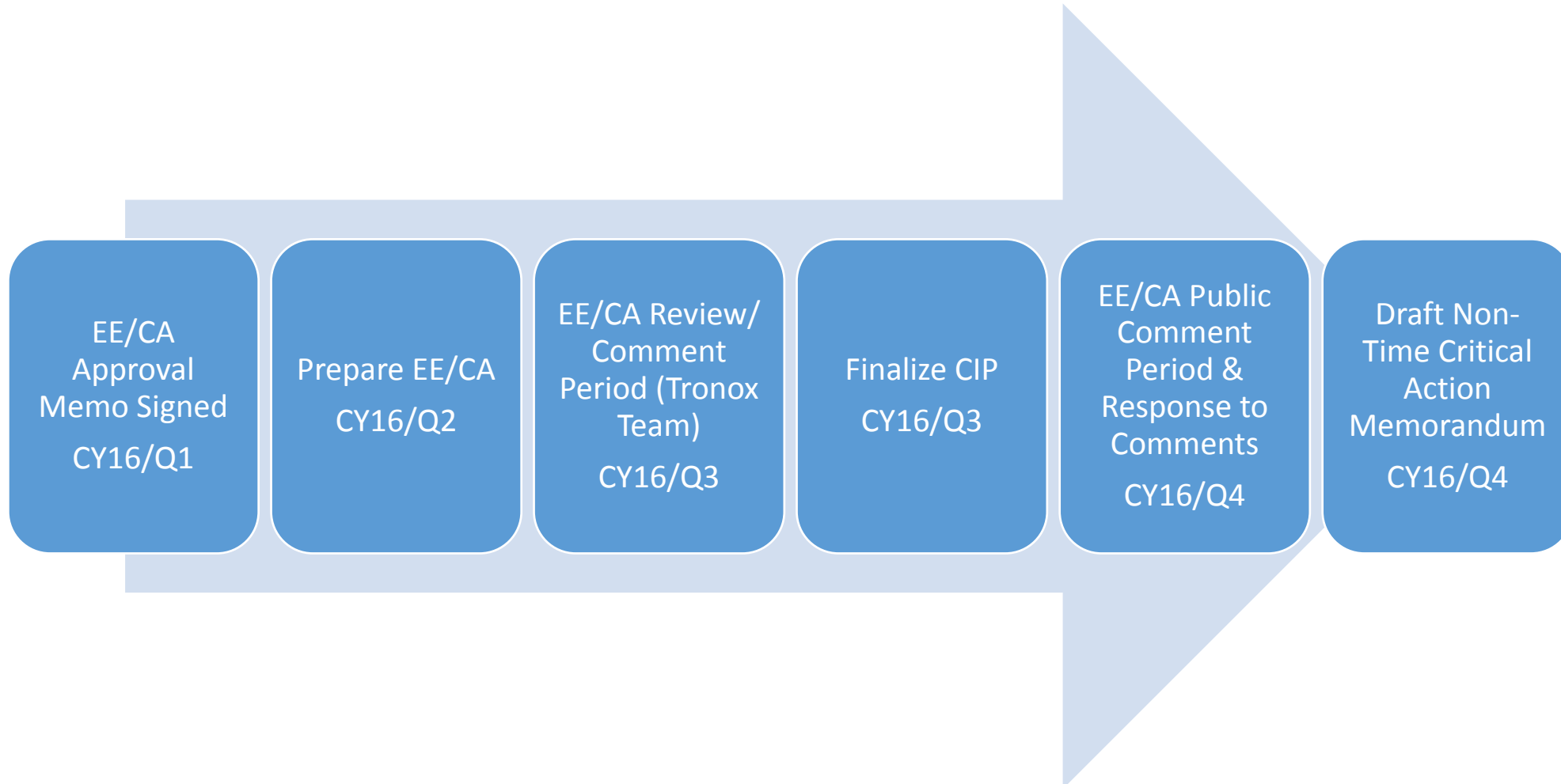
## Natural Law in the East GSA CERCLA Process

- ❖ The CERCLA Process requires an ecological risk evaluation as par of the EE/CA for a Site (consistent with Natural Law).
  - ❖ Ecological risk data has been collected
- ❖ The CERCLA Process requires the reasonable restoration or reclamation of response related damages (consistent with Natural Law).
  - ❖ Goals of Reclamation Plan for post removal activities:
    - ❖ Re-contour/amend soil as necessary for seeding (NATIVES ONLY)
    - ❖ Erosion and invasive plant control
    - ❖ Long term monitoring/maintenance to ensure a viable, healthy and harmonious arid grassland results from reclamation



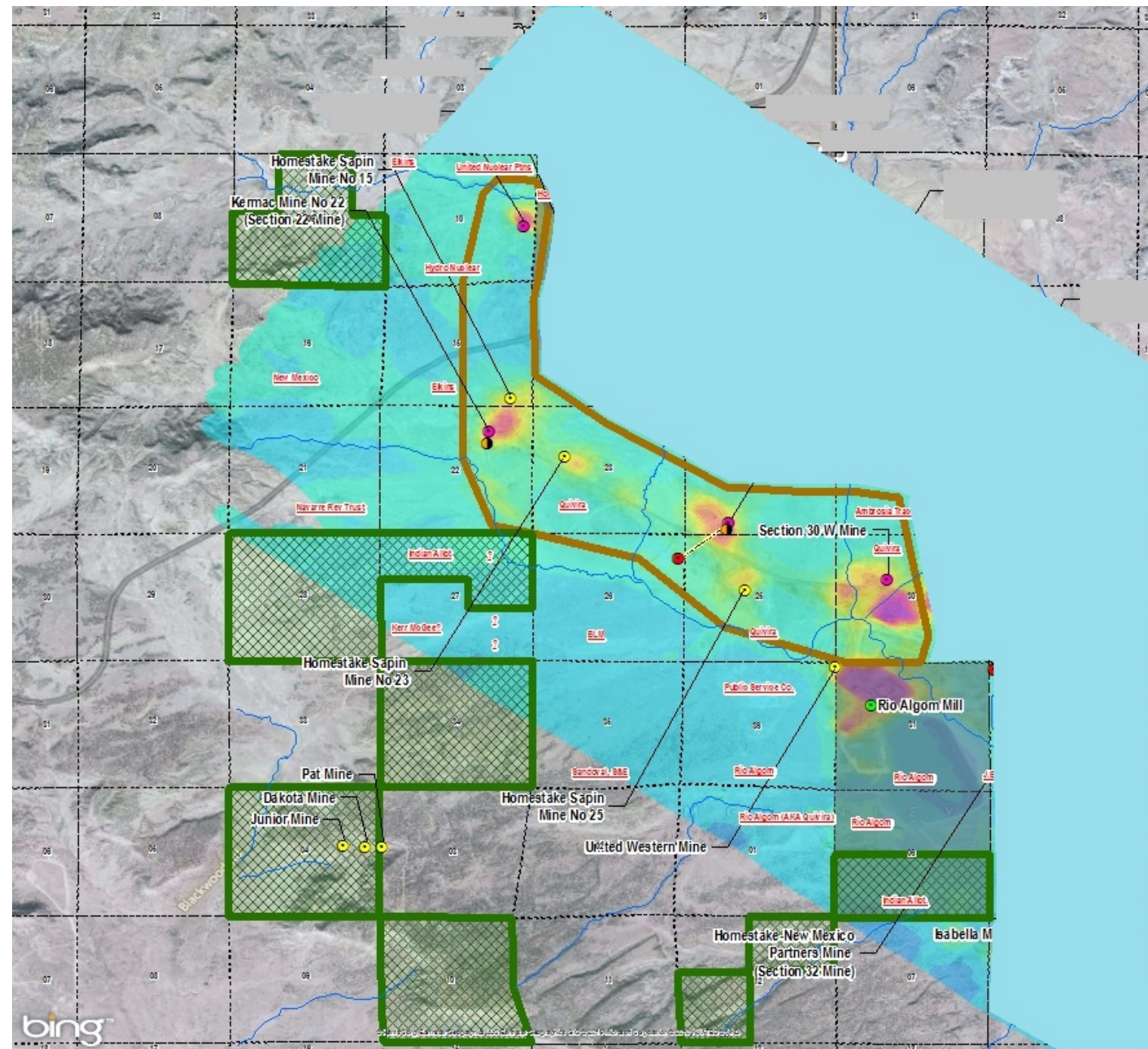
# EAST GSA PLANNED 2016 ACTIVITIES

ALL PLANNED  
2016 ACTIVITIES  
IN GSA WILL  
UTILIZE **EXISTING**  
**2015 FUNDING**



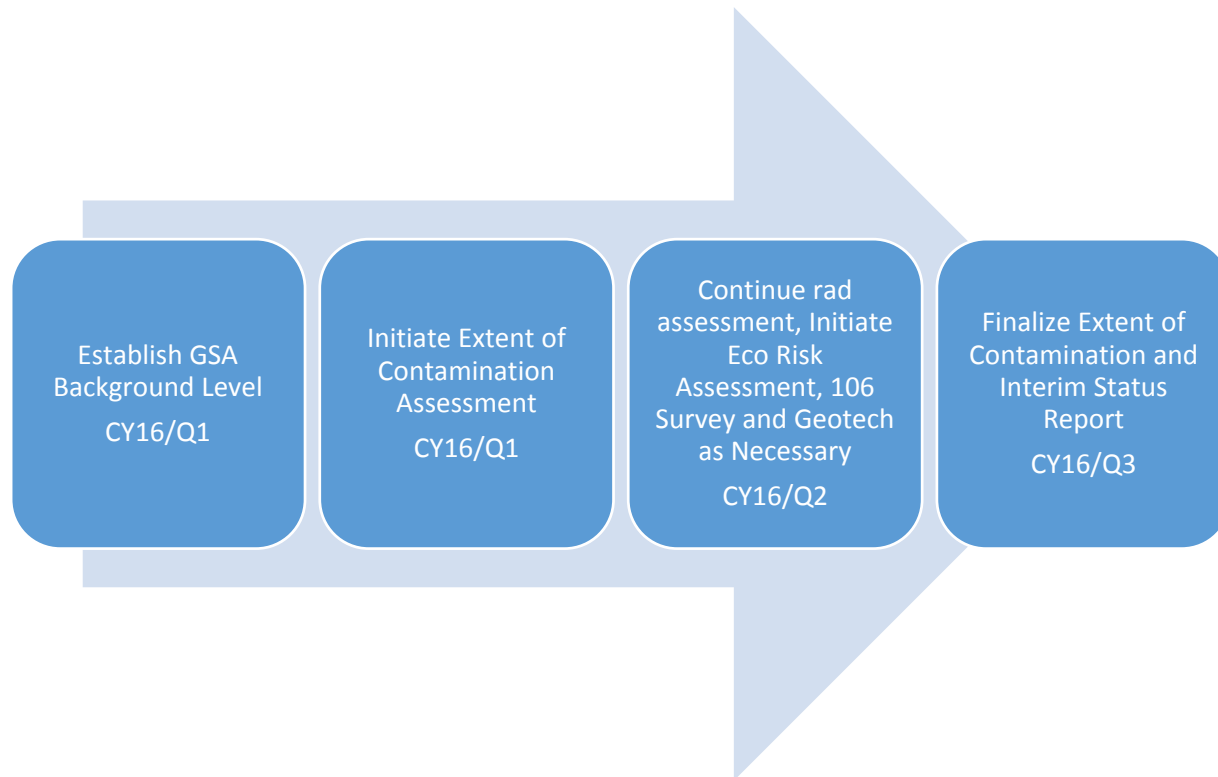
# WEST GSA STATUS

- ❖ Developed Statement of Work (SOW)
- ❖ Work plan for EE/CA process approved
  - ❖ Sampling and Analytical Plan (SAP)
    - ❖ Quality Assurance Project Plan (QAPP)
    - ❖ Quality Assurance Sampling Plan (QASP)
  - ❖ Site Health and Safety Plan (HASP)
- ❖ Establish GSA specific background, process initiated 02/29/2016
  - ❖ Rad survey of area
  - ❖ 1 minute static counts at 20 locations
  - ❖ 5 minute PIC readings at 20 locations
  - ❖ Collect samples for lab at 20 locations
- ❖ Initiate extent of contamination survey scheduled for 03/14/2016

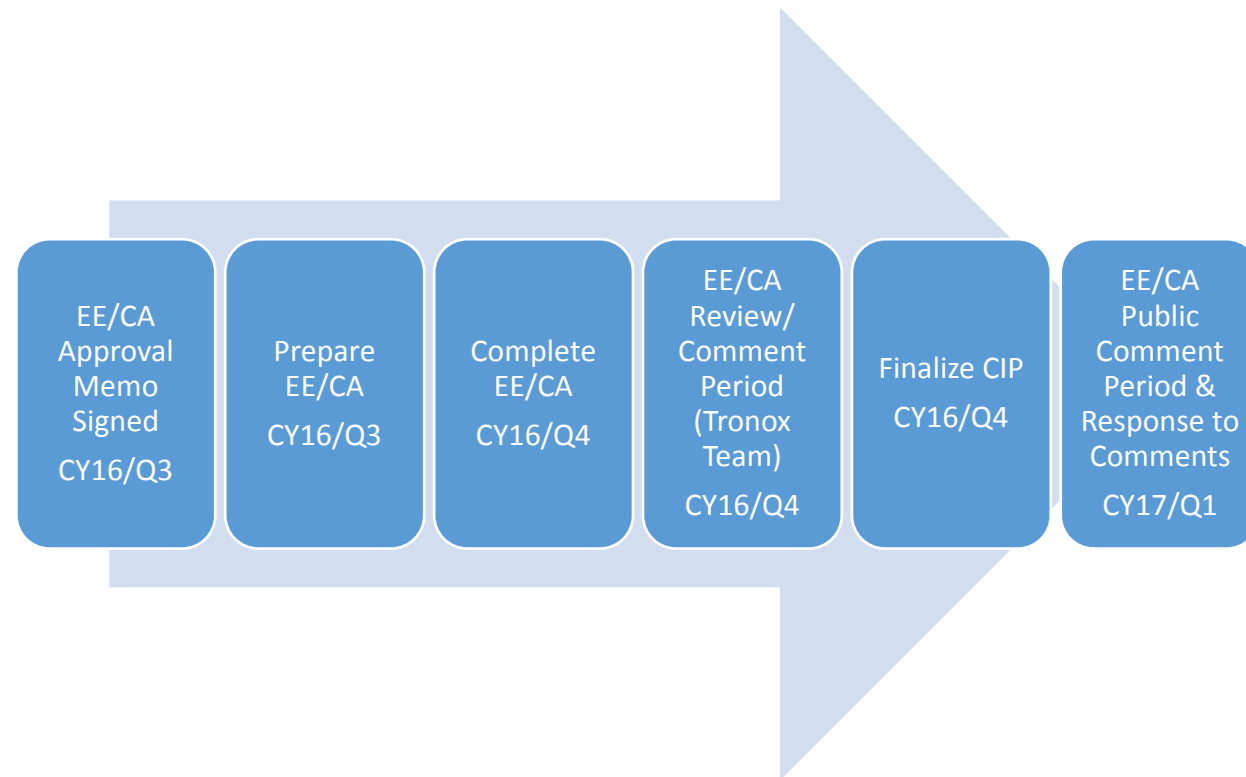


# WEST GSA 2016 PLANNED ACTIVITIES

## EXTENT OF CONTAMINATION SURVEY



## EE/CA PROCESS





# GROUNDWATER INVESTIGATION

San Mateo Creek Basin

Tronox NAUM Ambrosia Lake Impact Area



# COMPLETED FIELD ACTIVITIES

## PHASE 1 – 2014

- Alluvium
  - 4 Seismic Surveys
  - 30 Boreholes Drilled
  - 6 Monitoring Wells Installed

## PHASE 2 – 2015

- Alluvium
  - 14 Boreholes Drilled
  - 4 Monitoring Wells Installed
- Dakota Sandstone
  - 7 Boreholes Planned
  - 5 Boreholes Drilled/Cored, 2 Aborted
  - 1 Monitoring Well Installed





EASTERN AGENCY

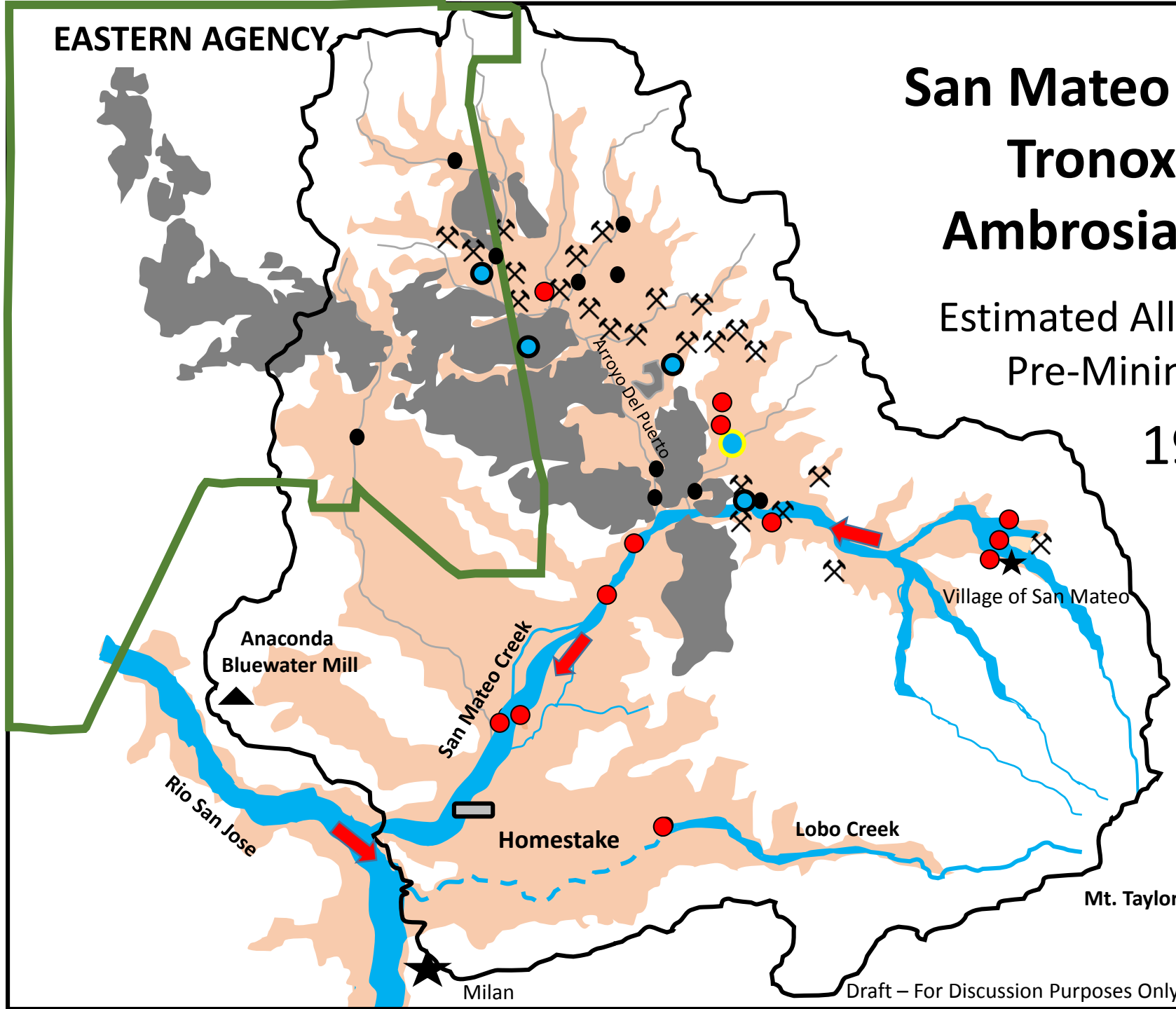
# San Mateo Creek Basin









## Tronox NAUM

### Ambrosia Lake Area

Estimated Alluvium Saturation  
Pre-Mining and Milling

1950s



-  Alluvial Aquifer
-  Mancos Shale/Dakota SS
-  Alluvium
-  Dakota Monitoring Well
-  Alluvial Monitoring Well
-  Alluvial Dry Borehole
-  Dakota Dry Borehole
-  Wet Mine

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EASTERN AGENCY

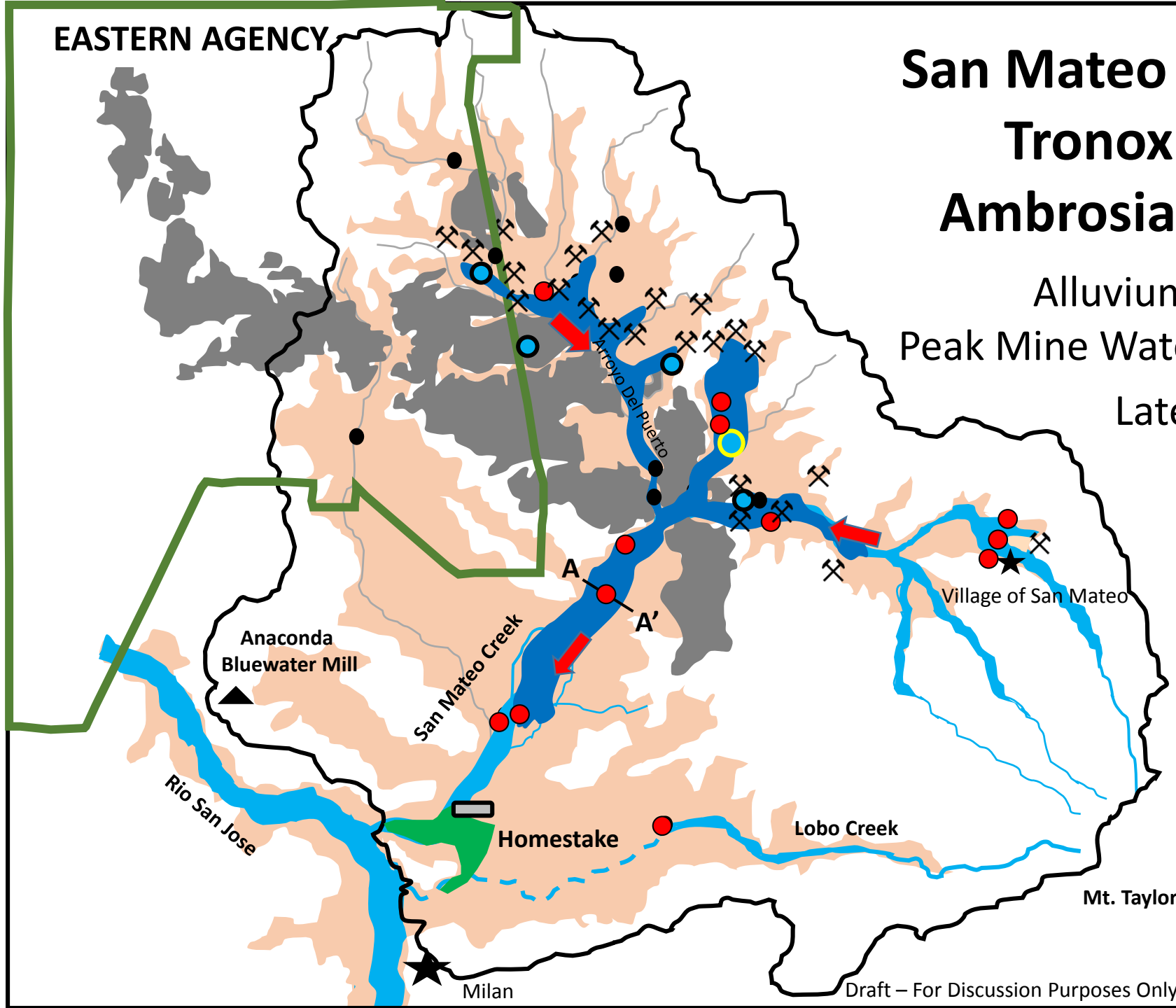
# San Mateo Creek Basin

## Tronox NAUM

### Ambrosia Lake Area

Alluvium Saturation  
Peak Mine Water Discharge Period  
Late 1970s

Estimated  
Over 90 Billion  
Gallons of  
Mine Water  
Discharged



- Alluvial Aquifer
- Mine Discharge Water
- Tailing Seepage Impacts
- Mancos Shale/Dakota SS
- Alluvium
- Dakota Monitoring Well
- Alluvial Monitoring Well
- Alluvial Dry Borehole
- Dakota Dry Borehole
- Wet Mine

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**A**

**A'**

**CROSS SECTION A - A'**  
**CENTRAL SAN MATEO CREEK BASIN AREA**  
**Upgradient Of Homestake**

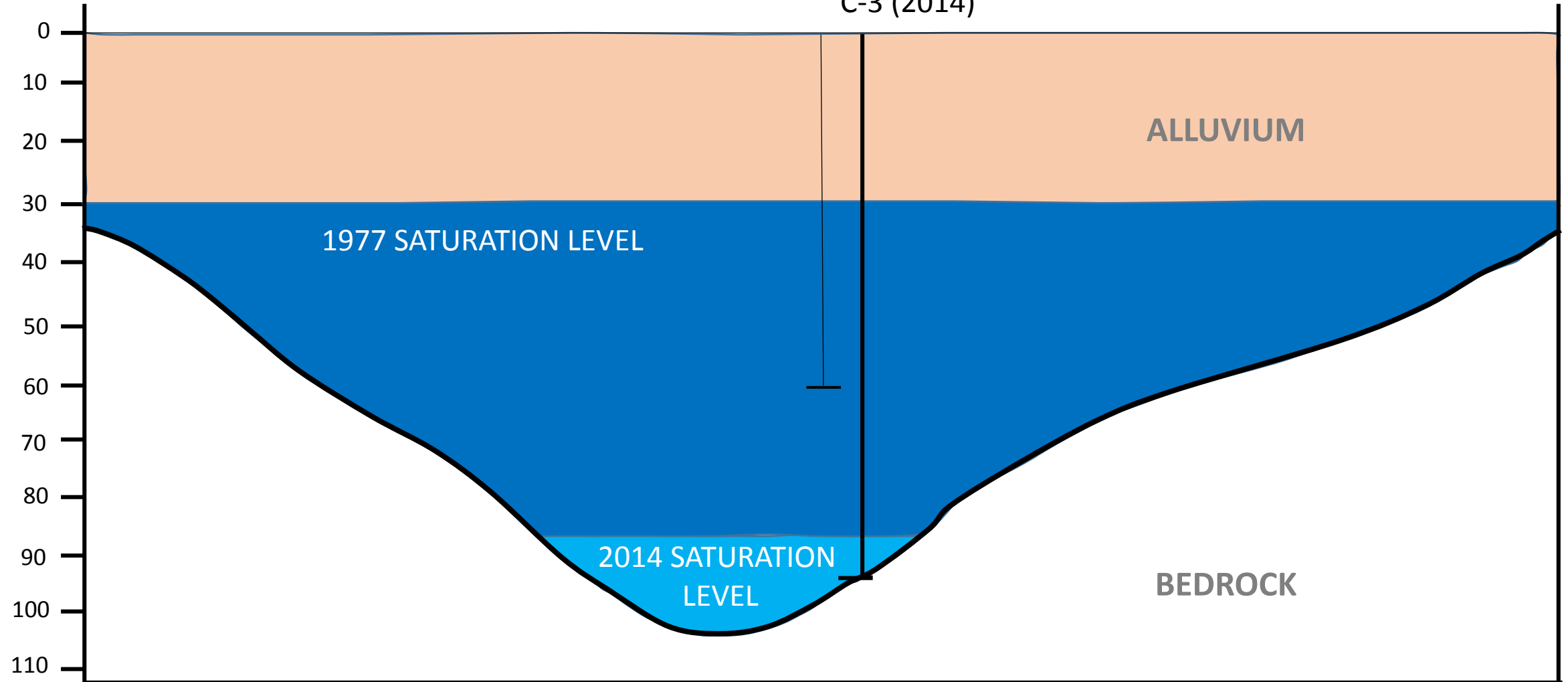
West

East

Depth  
(ft)

Private Water Well (1977)

C-3 (2014)



EASTERN AGENCY

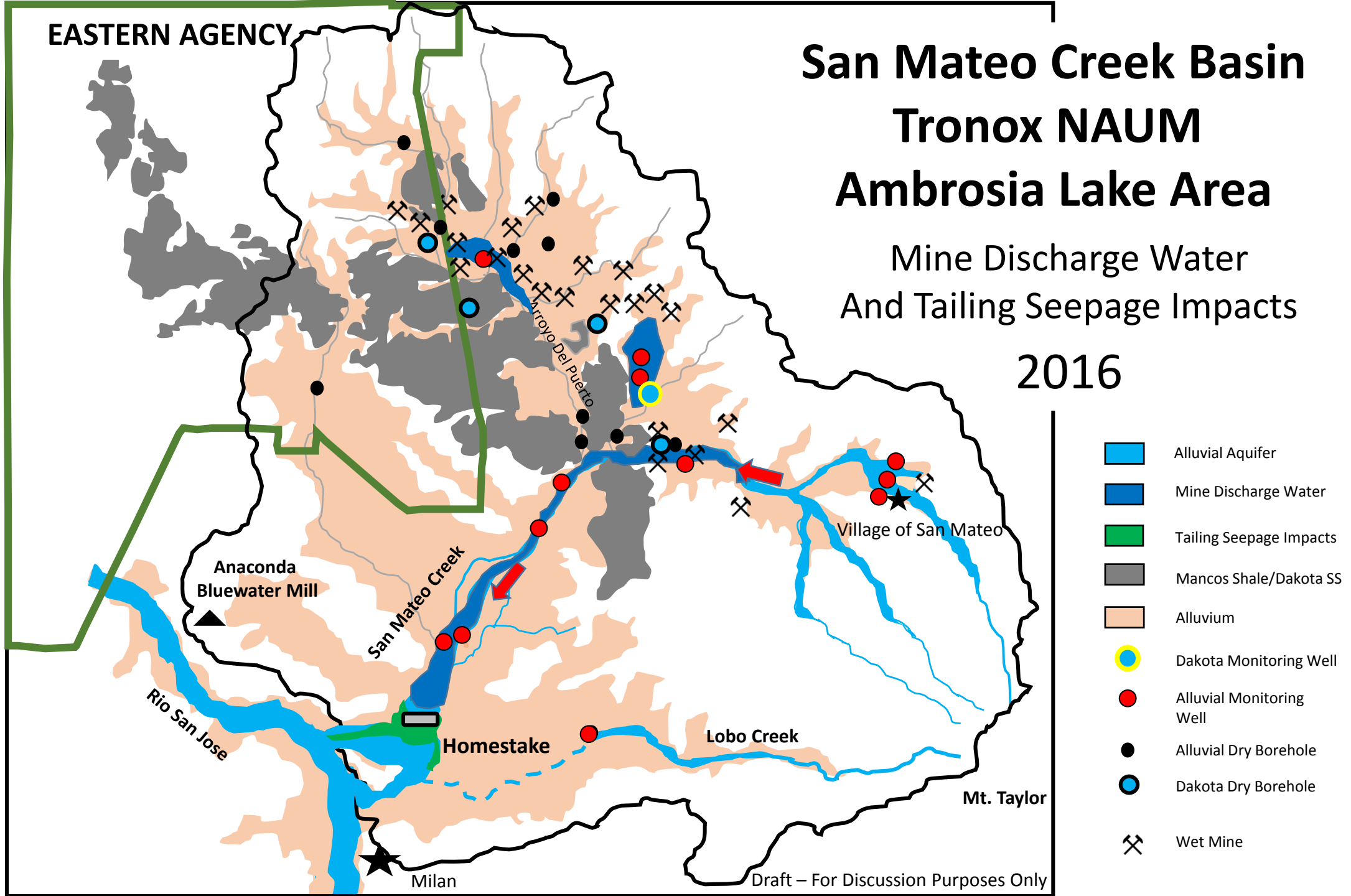
# San Mateo Creek Basin

## Tronox NAUM

### Ambrosia Lake Area

Mine Discharge Water  
And Tailing Seepage Impacts

2016





HAYSTACK  
CHAPTER

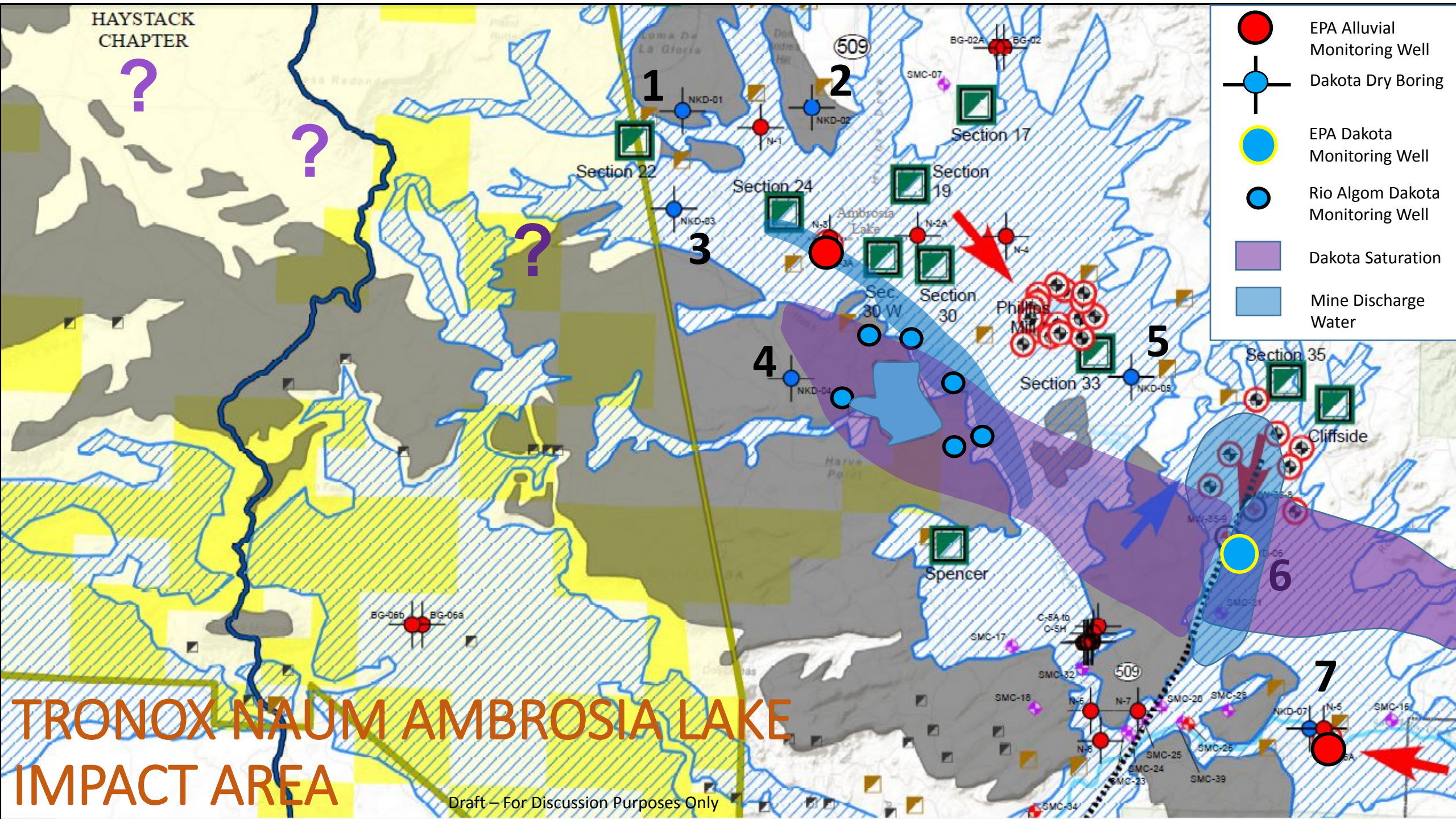
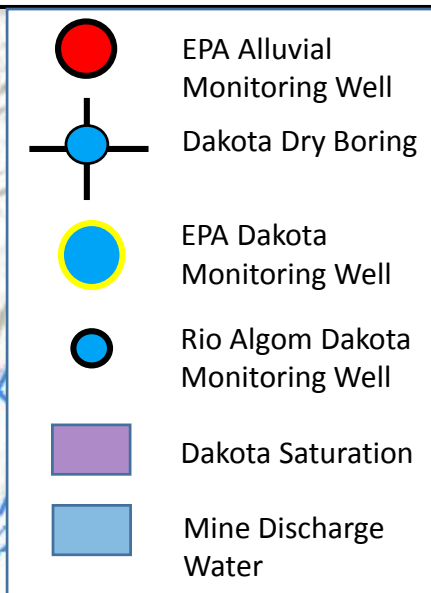
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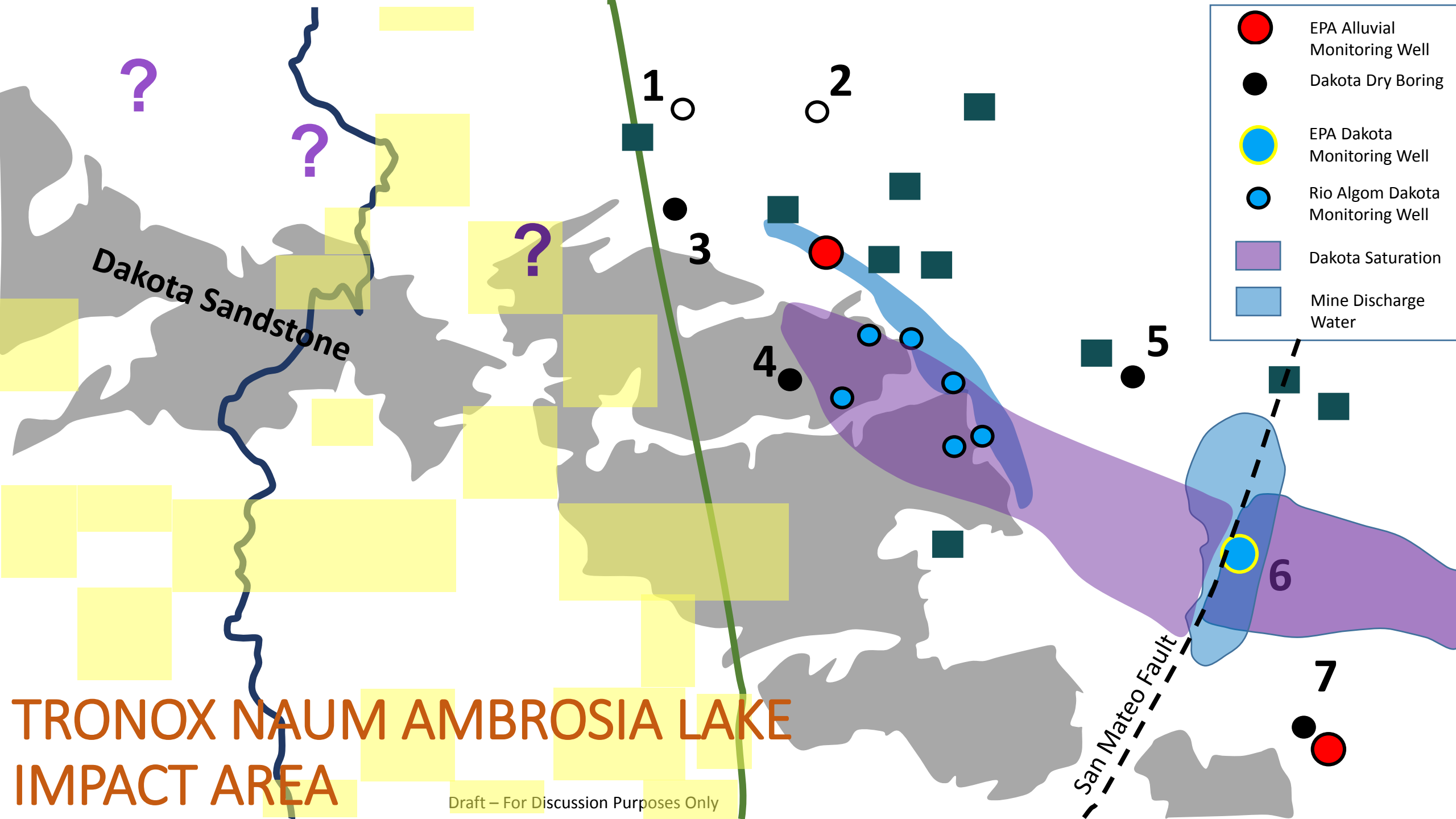
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# TRONOX NAUM AMBROSIA LAKE IMPACT AREA

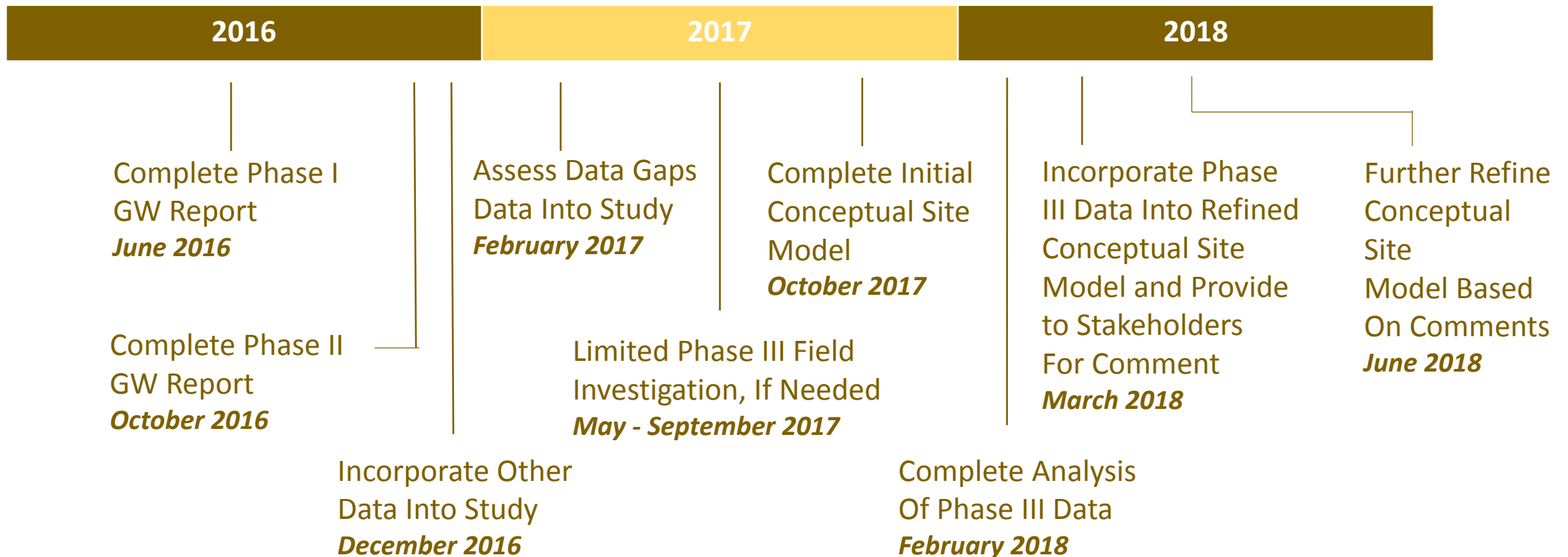
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# PLANNED ACTIVITIES FOR GROUNDWATER INVESTIGATION 2016 - 2018





QUESTIONS?

